Proficiency in Science

The proficient science student, when compared to age appropriate goals and standards is considered to be "on target" in terms of engaging in scientific activity and learning. The word appropriate is used often as a descriptor for this level. When it is used, it suggests that the student provides responses that include support/ justification, relevant details, and that demonstrate an understanding of concepts and vocabulary. Occasional inaccuracies, which do not interfere with conceptual understanding, may be present.

Content
By the end of 4th, 7th, 11th : Student demonstrates **appropriate** knowledge of science content as outlined in the Core Content for Science Assessment, Version 4.0, ***Structure and Transformation of Matter, Motion and Forces, The Earth and the Universe, Unity and Diversity, Biological Change, Energy Transformations, and Interdependence***.

Process/Inquiry
By the end of 4th: Student demonstrates **application of appropriate science process/inquiry skills** (i.e, ***question, observe, use simple equipment and skills, use evidence to develop reasonable explanations, design and conduct simple scientific investigations, review other students' investigations and explanations***) to **solve problems and to and/or address issues** related to Science and Technology, Science in Personal and Social Perspectives, and History and Nature of Science.

By the end of 7th: Student demonstrates **application of appropriate science process/inquiry** (i.e., ***refines and refocuses questions, uses appropriate equipment, tools, techniques, technology, and mathematics to gather, analyze, and interpret scientific data, uses evidence to develop scientific explanations, design, and conduct simple scientific investigations, reviews, and analyze others' investigations***) to **solve problems and/or address issues** related to Science and Technology, Science in Personal and Social Perspectives, and History and Nature of Science.

By the end of 11th: Student demonstrates **application of appropriate science process/inquiry** (i.e., ***refines and refocuses questions, uses appropriate equipment, tools, techniques, technology, and mathematics to gather, analyze, and interpret scientific data, uses evidence to develop scientific explanations, design, and conduct simple scientific investigations, reviews, and analyze others' investigations formulates testable hypothesis***) to **solve problems and/or address issues** related to Science and Technology, Science in Personal and Social Perspectives, and History and Nature of Science.

Themes/Concepts
By the end of 4th, 7th, and 11th: Student demonstrates appropriate understanding of unifying science themes/concepts (i.e., **Patterns, Systems, Scale and Models, Constancy, and Change Over Time**).

Communication
By the end of 4th, 7th, 11th: Student demonstrates appropriate communication skills by **organizing information; representing data in more than one way** (e.g. ***graphs, drawings, tables, words***); **communicating designs, procedures, observations, and results of scientific investigations; using evidence to support conclusions, using appropriate vocabulary; and communicating in a form suited to the purpose and audience.**

Critical Thinking
By the end of 4th: Student demonstrates appropriate use of **critical thinking skills** (e.g., ***compares, contrasts, classifies, analyzes errors, synthesizes, summarizes, uses analogies***).

By the end of 7th: Student demonstrates appropriate use of **critical thinking skills** (e.g., ***analyzes perspectives, uses inductive and deductive reasoning, and creates metaphors***).

By the end of 11th: Student demonstrates appropriate use of **critical thinking skills** (e.g., ***evaluates, synthesizes, applies, generalizes, and debates***).